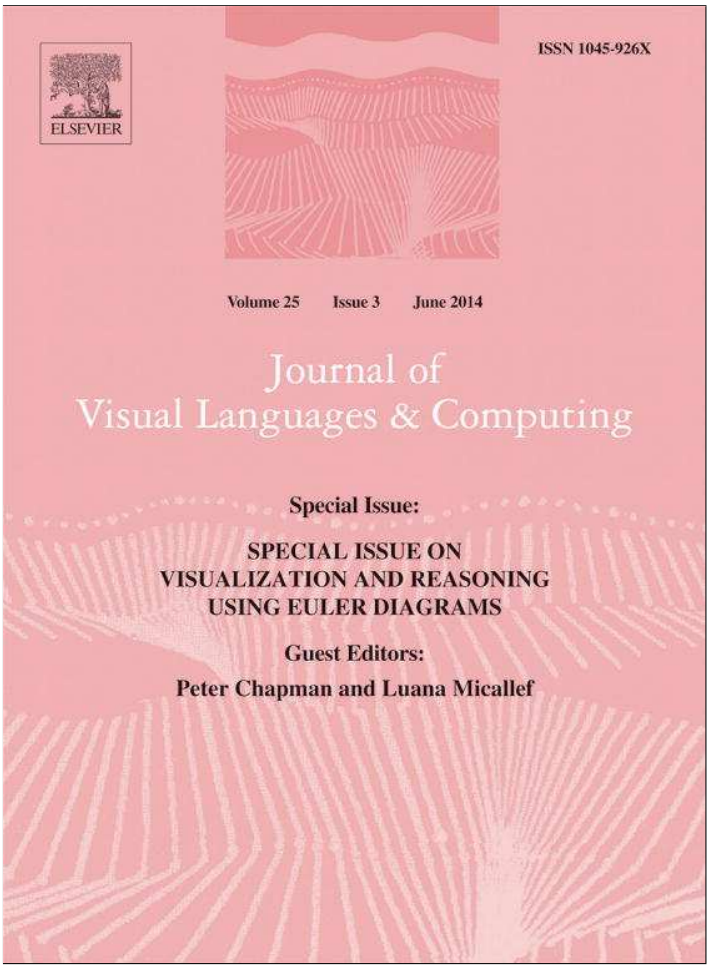

Journal of Visual Languages and Computing 25 (2014) 133

Contents lists available at ScienceDirect

Journal of Visual Languages and Computing

journal homepage: www.elsevier.com/locate/jvlc

Editorial

# Special Issue: Guest Editors' Introduction

Euler diagrams represent relationships between sets including intersection, containment, and disjointness. These diagrams have become the foundations of various visual languages and have notably facilitated the modelling of, and logical reasoning about, complex systems. Over the years, they have been extensively used in areas such as biosciences, business, criminology and national security to intuitively visualize relationships and relative cardinalities of sets. This widespread adoption has allowed analysis of complex collections of data.

This Special Issue contains extended versions of the papers presented at the third International Workshop on Euler Diagrams (Euler Diagrams 2012), held as a workshop of the seventh International Conference on the Theory and Application of Diagrams (Diagrams 2012) in Canterbury, UK. In addition to the call for papers from the workshop, an open call for papers was made.

The workshop covered all aspects of Euler diagram research, particularly areas such as: drawability and readability; layouts and diagram generation; logic and reasoning; information visualization; aesthetics; and evaluation, including comparison to other representations. This workshop was the third in the Euler Diagrams series (after two successful workshops in 2004 and 2005) and the first to run in conjunction with another conference.

The first paper of this Special Issue is an invited survey paper by Peter Rodgers. It covers all main aspects of Euler diagrams from foundational issues, through generation and drawing problems, to applications and various extensions to the basic notation. The survey will serve as both a comprehensive introduction for those new to the subject, and a useful overview of the state-of-the-art for established researchers in the area. Each section also includes a brief account of key open questions.

The next paper, by Koji Mineshima, Yuri Sato, Ryo Takemura and Mitsuhiro Okada, entitled *Towards Explaining the Cognitive Efficacy of Euler Diagrams in Syllogistic Reasoning*, examines an application for which Euler diagrams are particularly suited: syllogisms. It is known that Euler diagrams, when compared with Venn diagrams or textual information, are more effective for reasoning about syllogisms. By bringing together a number of different perspectives, the authors begin to form a model about where the efficacy comes from.

Continuing the theme of syllogisms, the third contribution, from Peter Cheng, investigates a novel representation for the topic, called Category Pattern Diagrams. The paper, *Graphical Notations for Syllogisms*: *How Alternative Representations Impact the Accessibility of Concepts*, examines the new diagrams in relation to the existing diagrammatic approaches of Euler diagrams, Venn diagrams, and Linear diagrams, as well as verbal representations of syllogisms. Through this examination, the author motivates the design choices made in the new notation.

On a completely different topic, Jean Flower, Gem Stapleton and Peter Rodgers introduce us to three dimensional space in the final paper of the Special Issue: *On the Drawability of 3D Venn and Euler Diagrams.* Moving from the plane to 3-space introduces not only many more possibilities for drawing diagrams, but a large number of new challenges and problems. By combining existing knowledge about drawability concerns with some topology, the authors outline some foundational results about the well-formedness of 3D diagrams.

We thank the Editors-in-Chief for enabling us to produce this Special Issue. We are extremely grateful to the referees, both of the Workshop and the Special Issue, for their thorough reviews and their willingness to work within our short time frames. We would finally like to thank the authors of the papers: without their high quality submissions, we would have been unable to produce what we hope is an engaging and enlightening Special Issue.

Peter Chapman*
*University of Brighton, United Kingdom*
*E-mail address:* p.b.chapman@brighton.ac.uk

Luana Micallef
*University of Kent, United Kingdom*
*E-mail address:* L.Micallef@kent.ac.uk

* Corresponding author.

1045-926X/$ - see front matter 
http://dx.doi.org/10.1016/j.jvlc.2013.10.006